

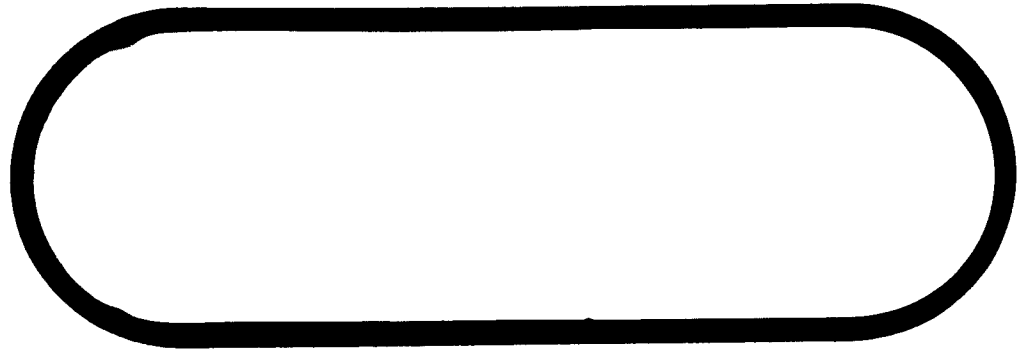
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TITLE FLIGHT ARTICLE MASS PROPERTIES REPORT FOR MINUTEMAN
WING II COMPONENTS FOR MISSILE 646 (GTM-020) (U)

MODEL NO. WS-133A CONTRACT NO. AFD4(694)-46

ISSUE NO. 12 ISSUED TO Astia

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ACTIVE PAGE RECORD

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SUMMARY

This report contains mass property summaries of the Boeing components for missile 646 which is scheduled to be assembled at Air Force Plant 77 as GTM-020. Therefore, the data contained in this report reflect a modified Wing II missile incorporating the changes scheduled for GTM-020.

1.0 INTRODUCTION

1.1 REFERENCES

- 1.1.1 BSD Exhibit 62-45, "Mass Properties Control Data for WS-133A", Dated 3 August 1962.
- 1.1.2 CCN 258 (BSD-63MEN-2597) to AFO4(647)-580, Dated 5 October 1962.
- 1.1.3 Boeing Document D2-13943, "Flight Article Mass Properties Report for CTLI Installations."
- 1.1.4 Boeing Document D2-13944-501, "Flight Article Mass Properties Report for Missile 501 Components."
- 1.1.5 Boeing Document D2-13956-1 "Statistical Means and Dispersions for the Mass Properties of Boeing Components for the Wing II Operational Minuteman Missile - March 1, 1963."
- 1.1.6 Boeing CCP 856, "Wing II GTM-020 for STP III usage."

1.2 COMPONENT SERIAL NUMBERS

The major components for this missile (interstages, aft skirt, and base heat deflectors) are all serial number 0000193 except for the aft skirt which is 0000191. Average mass properties are reported for the remaining components.

1.3 DISCUSSION

This weight report for the Boeing components for missile 646 is presented in accordance with Section 3.1.1 of BSD Exhibit 62-45 (reference 1.1.1) as authorized by CCN 258 (reference 1.1.2). Since missile 646 is scheduled to be assembled at Air Force Plant 77 as GTM-020, the data contained in this report reflect a modified Wing II missile incorporating the changes scheduled for GTM-020. These changes are set forth in Boeing CCP 856 (reference 1.1.6) and are summarized as follows:

- (1) The 2-3 interstage and the aft skirt are reworked.
- (2) Special cables are added to allow a repetitive countdown capability.
- (3) Ordnance assemblies for joint severance are removed but safe and arm devices are retained.
- (4) Insulation components, fasteners and joints, are not used.
- (5) A jumper cable extending between the instrumentation section and the guidance section is provided.

These changes are incorporated into the summary check lists on page 11 through 17.

The data presented in this report consist of (1) a sectional summary of the total Boeing Weight responsibility, (2) summary check lists by missile section, (3) a list of applicable Engineering Change Proposals, and (4) weighing records and inventory lists for the interstages and the aft skirt. The weight and balance data summarized on page 10 consist of actual mass properties for interstages, aft skirt,* and base heat deflectors and mean mass properties for the remaining items. The latest Wing II means and dispersions report (reference 1.1.5) contains sample data for derivation of the means.

This report will be revised to incorporate the actual data obtained during assembly of this missile at Air Force Plant 77.

1.4 CTLI PROVISIONS

The only CTLI provisions incorporated into this report are those components which are installed on every operational missile. The mass properties data for CTLI components which will be added at Vandenberg Air Force Base are reported in reference 1.1.3.

1.5 WEIGHING PROCEDURES

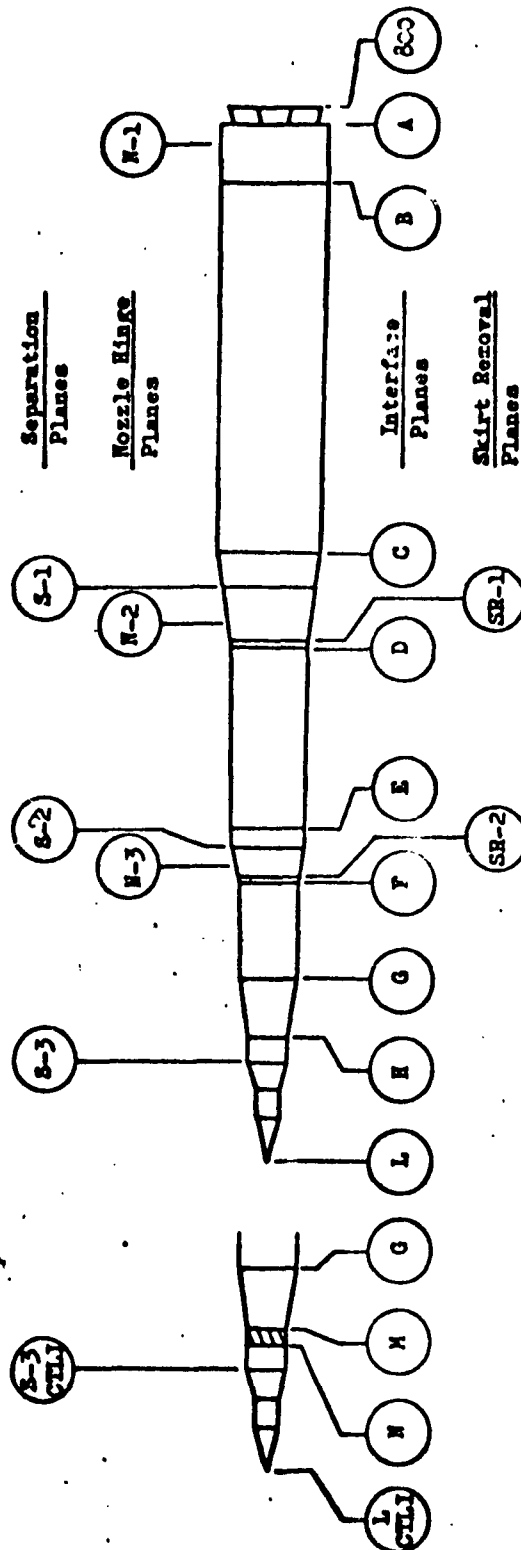
A description of the weighing procedures and an accuracy statement will be found in reference 1.1.4.

1.6 ENGINEERING CHANGE PROPOSAL (ECP) SUMMARY

See page 18 for a list of the ECP's incorporated on the Boeing components covered by this report. The ECP's listed are those not covered by the latest revision to "Model Specification for Guided Missile Main Assemblages, S-133-1000-0-1," Dated 25 October 1962.

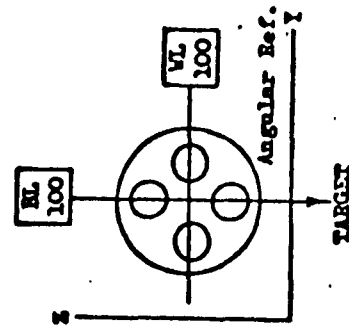
* Since actual data on the GTM-020 skirt will not be available until the time of missile assembly, the mass properties of the skirt for GTM-021 are included in place of the GTM-020 skirt. The data will be revised to reflect the correct configuration at a later date.

2.0 WING II OPERATIONAL AND CTLI MISSILE STATION DIAGRAM



▷ These Missile Stations become 50,000 when converted to Boeing Section Stations.

SEPARATION PLANES	MISSILE STA	INTERFACE PLANES	MISSILE STA
S-1	501.66	A	784.24
S-2	342.93	B	748.24
S-3	210.55	C	525.60
S-3 CTLI	200.53	D	466.52
		E	357.58
SKIRT REMOVAL PLANES		F	319.23
SR-1	166.97	G	257.45
SR-2	319.74	H	225.95
		I	129.48
NOZZLE HINGE PLANES			
N-1	770.03	M	225.95
N-2	177.32	N	215.95
N-3	327.33	L CTLI	119.49



Reference
STL Release 9862.6-513
(17 December 1962)

3.0 MISSILE NO. GIM-020 WEIGHT AND BALANCE SUMMARY MAJOR COMPONENTS S/N 0000193**						REPORT NO. _____ DATE _____				
LINE	SEC.	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x10 ⁻³	
						LONG. °	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section								
5			Silo							
6			Aero							
7	42	G&C Section			1.02	80.9	100.0	100.0	0	0
8			Silo							
9			Aero							
10	44	3rd Stage Engine			17.11	99.6	106.2	110.9	0	.003
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3			113.43	59.9	100.6	101.7	.009	.006
15		(Fwd)	Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned	Aero							
20		Portion	Base							
21			Jett							
22	45	Interstage 2-3			61.57	80.7	99.3	101.4	.006	.004
23		(Aft)	Silo							
24			Aero							
25	46	2nd Stage Engine			30.81	147.5	105.6	109.8	.001	.018
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2			240.72	67.1	99.9	101.6	.032	.022
30		(Fwd)	Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned	Aero							
35		Portion	Base							
36			Jett							
37	47	Interstage 1-2			127.41	97.0	100.8	99.7	.024	.014
38		(Aft)	Silo							
39			Aero							
40	48	1st Stage Engine			59.24	230.9	109.5	116.1	.003	.104
41			Silo							
42			Aero							
43			Base							
44	49	Skirt			284.9	68.4	100.7	101.2	.064	.039
45			Silo							
46			Aero							
47			Base							
48		MISSILE			936.21					
49			Silo							
50			Aero							
51			Base							
52			Jett							

* Boeing Section Stations (See Missile Station Diagram)
2-5550-0-58

** Art Skirt S/N 0000191

BOEING

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SEC

PAGE 10



[illegible]

Excludes BMS 5-62 added at Plant 77

CHECK LIST NO.		4.3		MISSILE WEIGHING CHECK LIST				RECORD OF CHECKING (DATE)															
DATE		MODEL WS-133		FINAL ASSEMBLY DRAWING NO. 21-53220-1				<table><tr><td>Mo</td><td></td><td></td><td></td></tr><tr><td>Day</td><td></td><td></td><td></td></tr><tr><td>Yr</td><td></td><td></td><td></td></tr></table>				Mo				Day				Yr			
Mo																							
Day																							
Yr																							
SECTION 45		MISSILE NO. OTM-020				COMPONENT				MISSILE													
MISSILE COMPONENT 2-3 INTERSTAGE		COMPONENT PART NO. Noted																					
ITEM NUMBER	DESCRIPTION	PART NO.	WEIGHT	X ARM	Y ARM	Z ARM	BASIC WEIGHT	AS WEIGHED	REMOTE SITE SHIPMENT	AS RECEIVED	REMOTE SITE	AS WEIGHED	REMOTE SITE	LAUNCH									
5a	Body Section (S/N 0000193)	25-36103-1	156.30	67.40	99.45	101.02	x																
5b	Interstage Installation	25-36812-1	3.19	66.9	100.2	100.3	x																
5c	Conduit Support Set	25-36381-1	2.33	68.1	110.5	118.1	x																
5d	Instl-Fwd. R/W Cap	25-36046-3	.09	54.4	109.2	116.0	x																
5e	Instl-Aft R/W Cap	25-36046-2	.10	83.0	111.0	119.0	x																
5f	Accelerometer Instl.	25-33281-2	.15	78.3	97.1	115.6	x																
5g	Support Comp-Elec Cable	25-27523-5	2.99	57.9	110.8	114.8	x																
5h	Instl-Elec Cab's Support	25-27524-6	.24	67.7	110.3	109.0	x																
5i	Bracket Comp-Cable Disconnect	25-27235-3	6.13	62.9	111.0	111.0	x																
5j	Disconnect Bracket Instl	25-27227-6	.22	64.2	111.2	111.4	x																
5k	Inert S&A Instl	25-32260-4	.05	78.4	89.8	80.5	x																
5l	S&A Device	10-20436-5	2.84	78.1	90.5	81.5	x																
5m	BWS 5-62 Installed at Plant 77 (Est.)		.37	60.6	110.0	111.0	x																

Excludes EIS 5-62 added at Plant 77

Excludes BS 5-62 added at Plant 77

CHECK LIST NO.		MISSILE WEIGHING CHECK LIST										RECORD OF CHECKING (DATE)			
DATE		MODEL <u>WB-133</u> FINAL ASSEMBLY DRAWING NO. <u>21-53220-3</u>										MISSILE			
		SECTION <u>47</u> MISSILE NO. <u>07M-020</u>										COMPONENT			
		MISSILE COMPONENT <u>1-2 INTERSTAGE</u> COMPONENT PART NO. <u>Noted</u>													
		DESCRIPTION													
		PART NO.													
		WEIGHT													
		X ARM													
		Y ARM													
		Z ARM													
		BASIC WEIGHT													
		AS WEIGHED													
		SHIPMENT													
		REMOTE SITE													
		AS RECEIVED													
		REMOTE SITE													
		AS WEIGHED													
		REMOTE SITE													
		LAUNCH													
7a	Body Section (S/N 0000193)	25-30109-4	342.70	77.91	99.54	100.28	x								
7b	Interstage Installation	25-36478-1	2.52	79.4	99.9	100.3	x								
7c	Conduit Support Set	25-36381-1	2.37	88.7	115.6	127.1	x								
7d	Instl-Fwd R/W Cap	25-36046-2	.09	53.5	110.2	119.5	x								
7e	Instl-Aft R/W Cap	25-36046-1	.09	105.8	116.2	128.0	x								
7f	Support Comp-Elec Cable	25-27523-5	2.30	59.6	112.6	118.1	x								
7g	Instl-Elec Cable Support	25-27524-6	.40	83.7	109.1	114.7	x								
7h	Bracket Comp-Cable Disconnect	25-27234-3	10.10	66.9	114.1	114.1	x								
7i	Disconnect Bracket Instl	25-27221-1	.23	70.7	120.2	120.3	x								
7j	S&A Device	10-20436-5	2.84	89.4	92.0	73.0	x								
7k	Inert S&A Instl	25-32260-3	.06	88.2	92.1	72.4	x								
7l	Cable Instl Repetitive Countdown	25-31924-1	.23	91.1	89.8	89.5	x								
7m	Cable Instl Repetitive Countdown	25-31924-4	2.99	66.9	110.7	112.0	x								
7n	WES 5-62 Installed at Plant 77 (Ent.)		1.21	58.9	109.4	113.3	x								

Excludes WES 5-62 added at Plant 77

CHECK LIST NO.		4.7 MISSILE WEIGHING CHECK LIST		RECORD OF CHECKING (DATE)	
DATE		MODEL W8-193		FINAL ASSEMBLY DRAWING NO. 21-53220-1	
SECTION 49		MISSILE NO. 07M-020		MISSILE	
MISSILE COMPONENT SKIRT		COMPONENT PART NO. Noted		COMPONENT	
DESCRIPTION	PART NO.	WEIGHT	X ARM	Y ARM	Z ARM
Skirt Assembly-Insl (S/N 0000191)	25-37472-1	275.05	68.66	100.38	100.63
Instl-Skirt Section	25-35492-2	1.66	52.8	100.5	100.9
Conduit Support Set	25-36381-1	2.54	57.3	117.8	129.8
Instl Raceway Cap	25-36046-1	.15	59.3	116.5	128.5
Support Comp-Elec Cable	25-27523-5	1.31	63.0	119.6	131.0
Instl-Elec Cable Support	25-27524-6	.37	69.1	128.0	120.2
Cable Instl Repetitive Countdown	25-31923-3	2.99	66.5	105.9	112.0
RCS 5-62 Installed at Plant 77 (Est.)		.83	58.3	102.9	105.0

3.0

ENGINEERING CHANGE PROPOSAL (ECP) INCORPORATION*
APPLICABLE TO WING II MISSILE 646 (GTM-020)

The following ECP's have not been incorporated into "Model Specification, Guided Missile Main Assemblage (8-133-1000-0-1)" dated 25 October 1962. However, the mass properties of these ECP's have been incorporated into this report unless otherwise noted.

ECP No. (WS-133A-BO-)	ECP TITLE	STAGE	WEIGHT CHANGE	WEIGHT CHANGE INCORPORATED IN THIS REPORT
369	Revision to Incorporate Blast Tubes in Second Stage Wing II Engines	2	-	Yes
540	Potting and Bonding Deletion for Vandenberg Air Force Base Missiles, Phase II	1,2,3	-	No**

* Since Boeing CCP 856 (reference 1.1.6) creates GTM-020, some of the requirements of this model specification and these ECP's have been superseded by the CCP. See page 7.

** ECP 540 requirements have been partially superseded by CCP 856.

2-5550-0-78

SERIAL NUMBER: 0000193				6.1.1 ACTUAL WEIGHT RECORD - INTERSTAGE 2-3				REPORT NO. OPR- PAGE NO. DATE 2-19-63			
U/O MISSILE QTM-020		DRAWING NO. 25-36103		CHECK LIST NO. 5		REPORTED BY RS/TV		PAGE NO. DATE 2-19-63		OPR- DATE 2-19-63	
MISSILE MODEL WS-133		DCN ADCN 8		REPORTED BY RS/TV		CHECKED BY QVR		DATE 2-19-63		OPR- DATE 2-19-63	
CONFIGURATION TAH		TAH		CHECKED BY QVR		DATE 2-19-63		OPR- DATE 2-19-63		OPR- DATE 2-19-63	

(FIGURE I)

LONGITUDINAL REFERENCE DATUM

(FIGURE II)

LATERAL REFERENCE DATUM

WEIGHING DATA						DIMENSIONAL DATA					
REACTION	GR. WT.	TARE	CORR.	NET WT.	REACTION	GR. WT.	TARE	CORR.	NET WT.	DIM. INCHES	DIM. INCHES
R1	100.45	67.70		32.75	R5	60.45	28.25		32.20	A1	47.343
R2	115.40	68.30		47.10	R6	61.10	36.50		44.60	A2	47.354
R3	98.05	67.10		30.95	R7	66.00	27.95		38.05	B3	88.351
R4	113.65	68.15		45.50	R8	75.20	33.75		41.45	B4	88.351
TOTAL	427.55	271.25		156.30	TOTAL	282.75	126.45		156.30	C	50.000

LONGITUDINAL C.G.				LATERAL C.G.				VERTICAL C.G.			
REACTION	NET WT.	ARM	MOMENT	REACTION	NET WT.	ARM	MOMENT	REACTION	NET WT.	ARM	MOMENT
R1	32.75	47.343		R5	32.20	100.000		R5	32.20	72.500	
R2	47.10	47.354		R6	44.60	72.501		R6	44.60	100.000	
R3	30.95	88.351		R7	38.05	100.000		R7	38.05	127.498	
R4	45.50	88.351		R8	41.45	127.499		R8	41.45	100.000	
AS WGD	156.30	67.40	10,535.3	AS WGD	156.30	99.45	15,543.4	AS WGD	156.30	101.02	15,790.8

WORKING No. 12-13946-2

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Fig "A" Number: 6501

Serial Number: 0000193

2-5590-0-79

CHECK LIST NO. <u>3</u>		6.1.2 MISSILE WEIGHING CHECK LIST		RECORD OF CHECKING (DATE)			
DATE <u>2-19-63</u>		MODEL <u>WS-133</u> FINAL ASSEMBLY DRAWING NO. <u>21-33820-3</u>		No	2	19	63
				Mo	Day	Yr	
ITEM NUMBER	SECTION <u>45</u>	MISSILE NO. <u>OTM-020</u>		COMPONENT			
MISSILE COMPONENT BODY SECTION GUIDED MISSILE COMPONENT PART NO. Noted							
	DESCRIPTION	PART NO.	WEIGHT	X ARM	Y ARM	Z ARM	
BODY SECTION ASSY							
	Interstage Assy- Structural	25-36103-1					
	Cork Insulation Installation	25-36102-1					
	Instr Rack & Accelerometer	25-37084-1					
	Marking Instl- Section 45	25-31659-4					
	Cover- Insulating	25-30134-28					
	Cover- Insulating	29-24652-2					
	Cover- Insulating	29-25598-1					
	Cover- Insulating (8)	29-23365-1					
	Cover- Insulating (8)	29-23365-2					
	Cover- Insulating (7)	29-23365-3					
	Cover- Insulating (4)	29-23365-4					
	Cover- Insulating	29-23365-5					
	Cover- Insulating (4)	29-23365-6					
	Seal- Forward	29-23674-1					
	Door- Access, Ordnance	29-22673-3					
	Closure Panel- Access, Ordnance	29-22672-2					
	Door- Access, Ignitor Stage II	29-22361-4					
	Closure Panel- Access, Booster Skirt	29-22081-5					
	Door- Access, Detonator	26-11678-1					
	Door- Access, Ignitor Stage III	26-11885-4					
	Door- Access, GHI	26-12909-1					
	Plug- Screw, Insulated	26-15247-2					
	Sleeve	26-14713-1					
	Bolt - 100° Head	BACB30EM-3-3					
	Bolt - 100° Head	-3-4					
	Bolt - 100° Head	-4-6					
	Bolt - 100° Head	-4-7					
	Bolt - 100° Head	-4-10					
	Bolt - 100° Head	-5-3					

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Serial Number: 0000193

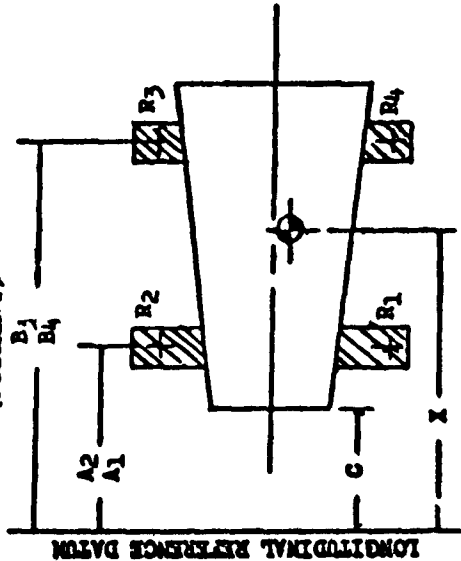
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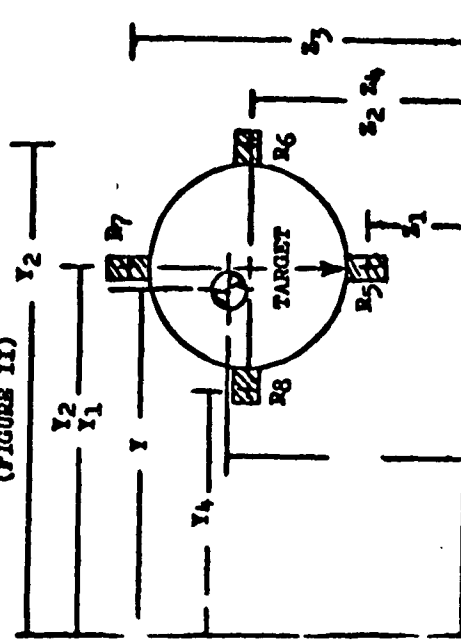
SERIAL NUMBER: 0000193		6.2.1 ACTUAL WEIGHT RECORD - INTERSTAGE 1-2	
U/O MISSILE	QDM-020	CHECK LIST NO. 7	REPORT NO. OPR-968
MISSILE MODEL	WS-133	REPORTED BY TV/RB	PAGE NO.
CONFIGURATION	TAH	CHECKED BY GVR	DATE 2-22-63
DRAWING NO. 25-30109-4			
DCN	3		
ADCN			

(FIGURE 1)



LONGITUDINAL REFERENCE DATUM

(FIGURE 11)



VERTICAL REFERENCE DATUM

WEIGHING DATA

REACTION	GR. WT.	TARE	CORR.	NET WT.	REACTION	GR. WT.	TARE	NET WT.
R1	249.25	161.80		87.45	R5	68.40	20.05	48.35
R2	155.10	64.60		90.50	R6	168.55	44.45	124.10
R3	228.80	144.60		84.20	R7	71.80	19.90	51.90
R4	128.15	47.60		80.55	R8	160.30	41.95	118.35
TOTAL	761.30	418.60		342.70	TOTAL	469.05	126.34	342.70

VERTICAL REFERENCE DATUM

DIM.	INCHES	DIM.	INCHES	DIM.	INCHES
A1	49.072	Z1	100.000	Y1	72.500
A2	49.070	Z2	72.501	Y2	100.000
B3	109.070	Z3	100.000	Y3	127.493
B4	109.070	Z4	127.499	Y4	100.000
C	50.000				

DIMENSIONAL DATA

LONGITUDINAL C.G.

REACTION	NET WT.	ARM	MOMENT
R1	87.45	49.072	
R2	90.50	49.070	
R3	84.20	109.070	
R4	80.55	109.070	
AS WGD	342.70	77.91	26,701.5

LATERAL C.G.

REACTION	NET WT.	ARM	MOMENT
R5	48.35	100.000	
R6	124.10	72.501	
R7	51.90	100.000	
R8	118.35	127.499	
AS WGD	342.70	99.54	34,111.9

VERTICAL C.G.

REACTION	NET WT.	ARM	MOMENT
R5	48.35	72.500	
R6	124.10	100.000	
R7	51.90	127.493	
R8	118.35	100.000	
AS WGD	342.70	100.28	34,367.5

2-5550-0-77

2-5550-0-77

Pl "A" Number 6701

Serial Number: 0000193

CHECK LIST NO. 7		6.2.2 MISSILE WEIGHING CHECK LIST		RECORD OF CHECKING (DATE)			
DATE 2/22/63		MODEL VS-133 FINAL ASSEMBLY DRAWING NO. 21-53220		Mo	Day	Yr	
SECTION AT		MISSILE NO. OTM-620		COMPONENT			
MISSILE COMPONENT BODY SECTION GUIDED MISSILE COMPONENT PART NO. Noted				MISSILE			
ITEM NUMBER	DESCRIPTION	PART NO.	WEIGHT	X ARM	Y ARM	Z ARM	
BODY SECTION (REWORKED)							
BODY SECTION ASSY							
	Interstage Assy- Structural	25-36101-1					
	Shield- Assy of, Insulated	25-36101-2					
	Shield-Time Delay, Booster	25-29544-1					
	Cork Insulation Instl-Exterior	25-37131-1					
	Plug- Access Hole	29-23663-1					
	Seal- Fwd Adapter Ring (2)	29-24180-1					
	Door- Access Stage Separation	26-11886-1					
	Door- Access, Booster	26-11888-1					
	Door Assy - Safe & Arm	29-20567-4					
	Closure Panel Ord. Access (1170)	29-28371-1					
	Door- Ordnance Access	29-28391-1					
	Cover Panel Tie	29-23654-1					
	Cover Panel Tie	29-23654-2					
	Panel- Insulation	29-25565-1					
	Panel- Insulation	25-36383-1					
	Marking Instl	25-30134-29					
	Cover Receptacle	29-22725-1					
	Bolt - 1000 Head	BAC30EM-3-8					
	Bolt - 1000 Head	4-11					
	Bolt - 1000 Head	4-9					
	Bolt - 1000 Head	4-5					
	Bolt - 1000 Head	3-4					
	Bolt - 1000 Head	3-3					
	Bolt - 1000 Head	4-10					
	Bolt - 1000 Head	4-19					
	Bolt - 1000 Head	4-20					
	Bolt - 1000 Head	41-9					
	Bolt - 1000 Head	41-16					

2-2260-0-21

FORM 12-13946-2

Serial Number: 000019.8

CHECK LIST NO.		6.2.2 MISSILE WEIGHING CHECK LIST		RECORD OF CHECKING (DATE)	
DATE		MODEL WS-133		No	
2/22/63		FINAL ASSEMBLY DRAWING NO. 21-53220-1		Day	
				63	
SECTION 47		MISSILE NO. QTM-020		COMPONENT	
MISSILE COMPONENT BODY SECTION GUIDED MISSILE COMPONENT PART NO. Noted.		WEIGHT		X ARM	
PART NO.		Z ARM		AS WEIGHED	
DESCRIPTION		BASIC WEIGHT		AS RECEIVED	
BODY SECTION ASSY (CONTINUED)		PART NO.		REMOTE SITE	
Bolt - 1000 Head		BAC30FM-1-4		SHIPMENT	
Bolt - 1000 Head		-4-6		REMOTE SITE	
Bolt - Pan Head		-P4-1		AS WEIGHED	
Washer		AN960-416L		REMOTE SITE	
Nut		NAS 679-ANW		LAUNCH	
Insulation		HWS 5-62			
Support Brkt-Jumper Cable		26-13741-1			
Doubler Access Hole, Jumper		29-23902-1			

2-5550-0-11 R1

6.2.3 WEIGHT AND BALANCE CHANGE RECORD											
ASSOCIATE CONTRACTOR		BOEING		CONTRACT NO.		AF04(694)-046		REPORT NO.		OFR-968	
COMPONENT		INTERSTAGE 1-2		LOT NO.				DATE		2-22-63	
MODEL NO.		WS-133		DRAWING NO.		25-30109-4		PREPARED		R. ST. ROMAN	
SERIAL NO.		0000193		U.O. MISSILE		OTM-020		APPROVED		G. ROBERTS	
EQUIPMENT CHANGE RECORD				WEIGHT AND BALANCE							
PART NO.	DESCRIPTION OF EQUIPMENT	WEIGHT	X AXIS		Y AXIS		Z AXIS				
			ARM	MOMENT	ARM	MOMENT	ARM	MOMENT			
1	25-30109-4	342.70	77.91	26,701.5	99.54	34,111.9	100.28	34,367.5			
2											
3	Body Section (As Weighed)										
4											
5	ADD:	0									
6											
7											
8	DEDUCT:	0									
9											
10											
11	25-30109-4	342.70	77.91	26,701.5	99.54	34,111.9	100.28	34,367.5			
12	Body Section (Complete)										
13											
14											
15											
16											
17											
18											
19											
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21											
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23											
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30											
31											
32											

BOEING

NO. D2-13946-2

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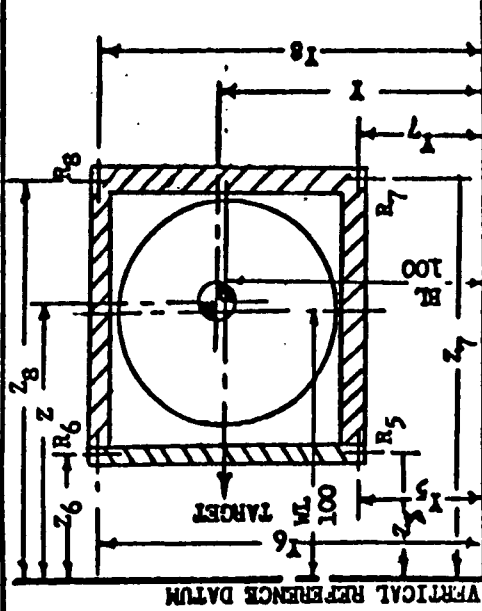
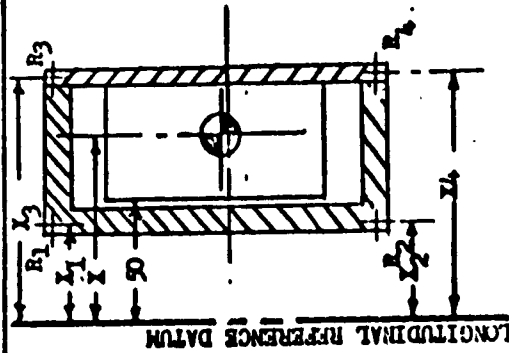
2-12-3

Serial Number: 0000191 6.3.1 ACTUAL WEIGHT RECORD - SKIRT

U/O MISSILE GYM-021 DRAWING NO. 25-37472 CHECK LIST NO. 9 REPORT NO. CFR-903

MISSILE MODEL WS-133 DCN B REPORTED BY HC/TV/R.BT PAGE NO.

CONFIGURATION TAH ADCN 5 CHECKED BY GVR DATE 2/11/63



WEIGHING DATA				DIMENSIONAL DATA			
REACTION	GR. WT.	TARE	NET WT.	Y INCH	Z INCH	Y INCH	Z INCH
R1	172.25	63.65	108.60	52.353	63.752	52.353	63.752
R2	55.35	8.50	46.85	52.354	63.727	52.354	63.727
R3	127.80	96.85	30.95	89.854	136.253	89.854	136.253
R4	239.95	151.30	88.65	89.854	136.229	89.854	136.229
TOTAL	595.35	320.30	275.05				
R5	111.20	51.86	59.34	63.752	63.661	63.752	63.661
R6	209.90	134.45	75.45	136.253	63.698	136.253	63.698
R7	184.80	108.15	76.65	63.727	136.160	63.727	136.160
R8	89.35	25.80	63.55	136.229	136.198	136.229	136.198
MOMENT			18,884.9	27,609.2	27,679.5		
TOTAL	595.25	320.20	275.05	68.66	100.38	100.68	

Serial Number: 0000191

2-5550-0-79

CHECK LIST NO.		6.3.2 MISSILE WEIGHING CHECK LIST		RECORD OF CHECKING (DATE)			
DATE		MODEL		REV.			
2-11-63		WS-133		ADCN			
2-11-63		WS-133		DCN			
2-11-63		WS-133		DCN			
SECTION 49		MISSILE NO. QTM-021		COMPONENT			
MISSILE COMPONENT BODY SECTION-GUIDED MISSILE COMPONENT PART NO. Noted		PART NO.		WEIGHT			
DESCRIPTION		WEIGHT		X ARM			
BODY SECTION (1-2-63)		25-37472-1		Z ARM			
BODY SECTION / SKIRT		25-36080-1					
SKIRT		25-36081-1					
Screw		NAS514F832-8					
Screw		NAS603-10					
Suppt Brkt G&C ONLY Conn.		25-37345-1					
Brkt, G&C Cable		29-28033-1					
Brkt, Cable Suppt		29-28847-1					
Brkt, Cable Suppt		29-28847-2					
Marking Installation		25-30134-30					
Insulation		PIS 5-62					
Doubler		29-23902-1					
Support		26-15031-1					

2-5550-0-11 21

6.3.3 WEIGHT AND BALANCE CHANGE RECORD											
ASSOCIATE CONTRACTOR BOEING			CONTRACT NO. AF04(694)-046			REPORT NO. OPR-903					
COMPONENT SIGHT			LOT NO.			DATE 2/11/63					
MODEL NO. WS-133			DRAWING NO. 25-37472-1			PREPARED RS/HC/TV					
SERIAL NO. 0000191			U.O. MISSILE GTM-021			APPROVED G. ROBERTS					
EQUIPMENT CHANGE RECORD				WEIGHT AND BALANCE							
LINE	PART NO.	DESCRIPTION OF EQUIPMENT	WEIGHT	X AXIS		Y AXIS		Z AXIS			
				ARM	MOMENT	ARM	MOMENT	ARM	MOMENT		
1											
2	25-37472-1	Body Section (As Weighed)	275.05	68.66	18,884.9	100.38	27,609.2	100.63	27,679.5		
3											
4											
5		ADD:	0								
6											
7											
8		DEDUCT:	0								
9											
10											
11	25-37472-1	Body Section (Complete)	275.05	68.66	18,884.9	100.38	27,609.2	100.63	27,679.5		
12											
13											
14											
15											
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BOEING

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